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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,797	07/30/2003	David Chao Hua Wu	1875.4730000	9430

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WASHINGTON, DC 20005

EXAMINER

DO, CHAT C

ART UNIT	PAPER NUMBER
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2193

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12/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/629,797	Applicant(s) WU, DAVID CHAO HUA	
	Examiner Chat C. Do	Art Unit 2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2009 and 16 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-25 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-25 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/16/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to Amendment filed 10/07/2009 and 10/16/2009.
2. Claims 21-25 and 32-36 are pending in this application. Claims 21 and 36 are independent claims. In Amendment, claims 1-20 and 26-31 are cancelled and claim 36 is added. This Office Action is made non-final after a RCE filed 10/07/2009.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-25 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collier et al. (U.S. 5,404,405) in view of Matsui (U.S. 4,716,589) in further view of Simanapalli et al. (U.S. 6,002,726).

Re claim 21, Collier et al. disclose in Figure 1 a system for producing a pulse code modulation (PCM) signal (e.g. abstract, Figure 1 and col. 1 lines 18-41), comprising: a first filter configured to produce an in-phase signal I(n) from a signal (e.g. by component 8 in Figure 1 and col. 2 lines 63-68); a second filter configured to produce a quadrature-phase signal Q(n) from the in-phase signal I(n) (e.g. the Hilbert filter 18 in Figure 1), a FM demodulator (e.g. all the components 18, 20, 22, 24, 26, 28, 30 and 34 in Figure 1) configured to produce a FM demodulated signal substantially equal to

$Z(n)/X(n)$, wherein $Z(n)$ and $X(n)$ are functions of $I(n)$ and $Q(n)$ (e.g. by output of components 30 and 34 in Figure 1), the FM demodulator including a denominator device that estimates a value $1/X(n)$ (e.g. for computing the I^2+Q^2 in component 30 in Figure 1); and a third filter configured to produce the PCM signal from the FM demodulated signal (e.g. output of the filters 40 and 42 in Figure 1).

Collier et al. fail to disclose two limitations (1) the denominator device estimates a value $1/X(n)$ based at least in part on a prior estimated value of $1/X(n)$ and a variable transition speed of $X(n)$ and (2) the signal is the secondary audio program (SAP). However, SAP is known in the art as clearly addressed in Matsui's reference. Matsui's reference discloses the SAP throughout the specification (e.g. col. 1 lines 14-51) with similar modulation/demodulation scheme. In addition, Simanapalli et al. clearly disclose the denominator device estimates a value $1/X(n)$ based at least in part on a prior estimated value of $1/X(n)$ and a variable transition speed of $X(n)$ (e.g. Figure 3, particular component 78 wherein the transition speed occurs within the input value $x(n)$ and the previous estimated value $y(n-1)$ by the evaluated component 78).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to replace/add the signal with the SAP as clearly seen in Matsui's invention and the denominator device estimates a value $1/X(n)$ based at least in part on a prior estimated value of $1/X(n)$ and a variable transition speed of $X(n)$ as seen in Simanapalli et al.'s invention into Collier et al.'s invention because it would enable to reproduce the information from the broadcasting signal efficiently (e.g. whole column 1

and col. 3 lines 51-68 in Matsui's reference and col. 2 lines 32-39 in Simanapalli et al.'s reference) .

Re claim 22, Collier et al. further disclose in Figure 1 $Z(n)$ is substantially equal to $[IQ' - I'Q]$ and $X(n)$ is substantially equal to $[I^2 + Q^2]$ (e.g. by component 30 in Figure 1 wherein I and Q are periodic signals).

Re claim 23, Collier et al. in view of Matsui further to disclose in Figure 1 the SAP signal is a constant magnitude signal, a sine wave, or a cosine wave (e.g. inherently for FM modulation scheme).

Re claim 24, Collier et al. further disclose in Figure 1 the first filter is a band pass filter (e.g. filter 8 in Figure 1 and col. 2 lines 63-68 for selective band).

Re claim 25, Collier et al. further disclose in Figure 1 the second filter is a Hilbert filter (e.g. by the filter 18 in Figure 1 for phase shifting the original signal $I(n)$).

Re claims 32-35, Collier et al. in view of Matsui fail to disclose the denominator devices estimates the value $1/X(n)$ based at least in part on the prior estimated value of $1/X(n)$ plus an error value wherein the error value is substantially equal to $[1 - X(n)/X(n-1)]$ and the error value is scaled by a value of a scaling coefficient before being added to the prior estimated value of $1/X(n)$ and wherein the value of the scaling coefficient is based on the transition speed of $X(n)$. However, Simanapalli et al. disclose in Figures 2-3 the denominator devices estimates the value $1/X(n)$ based at least in part on the prior estimated value of $1/X(n)$ plus an error value wherein the error value is substantially equal to $[1 - X(n)/X(n-1)]$ and the error value is scaled by a value of a scaling coefficient before being added to the prior estimated value of $1/X(n)$ (e.g. Figure 3, particularly

component 78) and wherein the value of the scaling coefficient is based on the transition speed of $X(n)$ (e.g. Figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the denominator devices estimates the value $1/X(n)$ based at least in part on the prior estimated value of $1/X(n)$ plus an error value wherein the error value is substantially equal to $[1-X(n)/X(n-1)]$ and the error value is scaled by a value of a scaling coefficient before being added to the prior estimated value of $1/X(n)$ and wherein the value of the scaling coefficient is based on the transition speed of $X(n)$ as seen in Simanapalli et al.'s invention into Collier et al. in view of Matsui's invention because it would enable to enhance the system performance (e.g. col. 2 lines 32-39).

Re claim 36, it is a system claim having similar limitations cited in claims 21 and 34-35. Thus, claim 36 is also rejected for being dependent on the rejection of rejected claims 21 and 34-35.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 2193

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 21-25 and 32-36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3 and 9 of U.S. Patent No. 7,006,806 in view of Simanapalli et al.

Claims 1, 3 and 9 of Patent No. 7,006,806 contain similar elements of claims 21-25 and 32-36 of the instant application and thus anticipated the claims of the instant application. these claims do not contain the limitations of the denominator devices estimates the value $1/X(n)$ based at least in part on the prior estimated value of $1/X(n)$ plus an error value wherein the error value is substantially equal to $[1-X(n)/X(n-1)]$ and the error value is scaled before being added to the prior estimated value of $1/X(n)$ and a transition speed of $X(n)$ and wherein the value of the scaling coefficient is based on the transition speed of $X(n)$. However, Simanapalli et al. disclose in Figures 2-3 the denominator devices estimates the value $1/X(n)$ based at least in part on the prior estimated value of $1/X(n)$ plus an error value wherein the error value is substantially equal to $[1-X(n)/X(n-1)]$ and the error value is scaled before being added to the prior estimated value of $1/X(n)$ (e.g. Figure 3, particularly component 78) and a transition speed of $X(n)$ and wherein the value of the scaling coefficient is based on the transition speed of $X(n)$ (e.g. Figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the denominator devices estimates the value $1/X(n)$ based at least in part on the prior estimated value of $1/X(n)$ plus an error value wherein the error value is substantially equal to $[1-X(n)/X(n-1)]$ and the error value is scaled before being added to the prior estimated value of $1/X(n)$ and a transition speed of $X(n)$ and wherein the value of the scaling coefficient is based on the transition speed of $X(n)$ as seen in Simanapalli et al.'s invention into the Patent 7,006,806 because it would enable to enhance the system performance (e.g. col. 2 lines 32-39).

Response to Arguments

7. Applicant's arguments filed 10/07/2009 have been fully considered but they are not persuasive.

a. The applicant argues in pages 6-7 for claims that the secondary reference by Simanapalli fails to disclose the limitation of estimation of $1/X[n]$ is also based on a variable transition speed of $X[n]$ since Simanapalli requires the sampling rate be always sufficiently high and remain sufficiently high such that the envelope changes between adjacent samples are very small.

The examiner respectfully submits that the current claim language does not clearly distinct from the cited reference by Simanapalli. The claims merely disclose estimation of $1/X[n]$ is (along other factors) also based on a variable transition speed of $X[n]$, regardless as how or what is the transition speed of $X[n]$ in mathematically terms that would distinct from the cited reference. In addition,

Simanapalli discloses the context of the phrase “the transition speed of $X(n)$ ” within the operation block 78 in Figure 3 wherein the current estimated value $r[n+1]$ (e.g. as $y[n]$) is also based on value of current input sample $x[n+1]$ and the previous estimated value $r[n]$. This product is called transition speed of $x[n]$ since the value of $x[n]$ would indicate the amount of transition of final computed result. This interpretation is exactly within the context of the original specification of the current claimed invention.

Further, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the feature of whether the transition speed of $X[n]$ or the sampling rate should be high or low) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

- b. The applicant argues in pages 7-8 for claims 34-35 and 36 that the secondary reference by Simanapalli fails to disclose the limitations of the error value substantially equal to $\{1-x[n]/x[n-1]\}$ wherein the error value is scaled by a value of a scaling coefficient based on the transition speed of $x[n]$ before being added to the prior estimated value of $1/x[n]$

The examiner respectfully submits that the above limitation is clearly seen in expressions 78 in Figure 3 wherein error is approximated and scaling term are seen in the second term of the expression 78.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHAT C. DO whose telephone number is (571)272-3721. The examiner can normally be reached on Tue-Fri 9:00AM to 7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571) 272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chat C. Do/
Primary Examiner, Art Unit 2193

December 7, 2009